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RESEARCH PROJECTS APPROVED OR RENEWED DURING AUGUST 1950:

The following numbers of research projects were approved for negotiation or renewal during August for direct AEC administration:

	No. of Projects	Amount
Medicine	5	$ 126,361
Biology	3	20,735
Total	8	$ 147,096

In addition, one project in the amount of $4,600 was approved for joint support by the AEC and the Office of Naval Research.

A list of the projects covered in the above summation is available in the Division of Biology and Medicine.

MEDICAL BRANCH

American Red Cross to Administer Atomic Energy Blood Separation Research

Improved methods for separating and preserving blood components of interest in atomic energy research will be sought in a program administered by the American National Red Cross under a contract with the Atomic Energy Commission.

The primary interest of the AEC in blood fractionation studies is the development of means for separation and preservation of white blood cells and platelets, which are two blood components of particular value in combating acute radiation effects.

In its initial studies under the contract, however, the Red Cross will administer engineering development of new and quicker methods for obtaining and preserving plasma and red blood cells.

In connection with civil defense planning there is an acute need for development of facilities that can separate quickly large quantities of blood fractions so that stockpiles of blood constituents will be available in the event of atomic disaster.

None of the AEC funds will be used to finance central overhead or operating expenses of the Red Cross National Blood Program, nor does the contract provide for establishing blood banks.

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MEDICAL BRANCH (continued)

At the request of the National Security Resources Board, the Atomic Energy Project at the University of Rochester is planning to put on a top level training course for 75 nurses in the "Nursing Aspects of Atomic Warfare". This course will last approximately one week and will take place during late October or early November.

[redacted] SECRET

Dr. George Hardie attended a meeting at the NYOO on August 24 on the future of the polonium toxicity research program. Representatives from the Mound Laboratory, Oak Ridge Operations Office, University of Rochester Project, New York Operations Office, as well as the Division of Biology and Medicine, were present. Plans were made to hold a two-day symposium on polonium toxicity research accomplishments at Rochester on September 21-22.

BIOLOGY BRANCH (RESEARCH PROBLEMS)

University of Tennessee (Oak Ridge)

A project has been initiated jointly with the Division of Military Application to determine the effects of exposing large animals to external radiation using tantalum 182. Initially, burros will be used as they approximate the size of man. The range of exposure will be from 30 r to 150 r daily. The outdoor exposure field will be constructed so that it can be deactivated to allow for the handling and observation of the animals. The physiological criteria as to the effects of the radiation will include, physical fitness, blood chemistry and hematology and fertility.

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U. S. Department of Agriculture (Beltsville, Md.)

Fertilizer: According to Dr. F. W. Parker, Assistant Chief of the Bureau of Plant Industry, Soils and Agricultural Engineering, the advances made in our knowledge of phosphate fertilizers during the last three years through the use of radioisotopes exceeds the information obtained during the preceding fifty years. The economic importance of this is apparent when we consider that the annual sales of phosphate fertilizers in the U. S. exceeds 10 million tons.

BIOPHYSICS BRANCH

The radiation background survey of the Idaho Reactor Test site carried on during the summer is essentially complete. Because of Hanford's proximity to Idaho and "know-how" in low-level radiation measurement, they undertook to make radioactivity tests of the air, soil, water, vegetation and animals. Idaho State College collected, prepared and shipped samples

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BIOPHYSICS BRANCH (continued)

to Hanford, while as part of its own ecological survey of the area it collected and preserved some 180 specimens of plants and 68 specimens of small animals for the college. It has also staked out about 250 plots in order to follow any changes which might occur in vegetation. The Hanford measurements showed that radon and thoron concentrations in the air at the site are somewhat higher than at Hanford, but that the radioactivity of the water is somewhat less than at Hanford -- about one tenth of the present permissible level. Because iodine may become one of the major radioactive contaminants, particular emphasis has been laid on the natural occurrence of iodine. There are strong indications of several distinct levels of iodine concentration at various locations about the site. The level of potassium (including K^{40}) appears to be higher than at Hanford. These detailed observations will be of much value in checking on possible contamination of the area, particularly of grazing lands, when reactor operations begin.

A preliminary study has been made to determine the levels of radioactivity due to fission products which might be tolerated for emergency periods in food and drinking water. For periods not exceeding a few weeks, water contaminated within certain reasonable limits can be used with very little real hazard, and these levels of contamination are such that they can be measured by monitors using ordinarily available field monitoring instruments. It is expected that these permissible limits of contamination will be made public shortly, following concurrence by experts to whom the study has been submitted.

CIVIL DEFENSE LIAISON BRANCH

Instructor Training Program

The Illinois Tech course for radiation detection monitors was completed August 11. A total of 83 persons were trained in five courses (Brookhaven, Oak Ridge, UCLA, Reed College, and Illinois Tech) which were given.

Emergency Radiation Monitoring Program

Further progress was made in equipping the 18 emergency monitoring teams composed of AEC employees or the employees of AEC contractors which now have the essential radiation detection instruments. In addition, the Operations Offices have been sent maps of each city in their areas with a population in excess of 50,000. A meeting of team representatives was scheduled for September 22 for the purpose of coordinating team operational plans.

CIVIL DEFENSE LIAISON BRANCH (continued)

NSRB Civil Defense Exercises

Mr. Harry L. Bowman returned from the Seattle Test Exercise. In this exercise--as in the Washington exercise which preceded it and in the Chicago exercise to follow--NSRB proposed for the local authorities a hypothetical situation involving the detonation of 2 or 3 atomic bombs. Various city departments--police, fire, highways, water, etc.--and the utilities serving the locality--telephone, telegraph, electric, gas, etc.--after an appraisal of its resources, told how they would meet the emergency with its present equipment. Each exercise that has been held so far has been well attended by governors of near-by states and mayors of neighboring cities.

Information Furnished NSRB

The pamphlet "Medical Aspects of Atomic Weapons" jointly prepared by the AEC and Department of Defense was revised and reprinted during the month.

A considerable amount of study went into the matter of shelters. Sketches and a statement of principles were furnished to NSRB for possible inclusion in their forthcoming publication for distribution to state governors.

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RADIATION INSTRUMENTS BRANCH [redacted]

The first civilian defense type instrument which has become available under the Branch's development program has been tested at the Bureau of Standards for energy dependency and by the Signal Corps at Fort Monmouth, New Jersey, for ruggedness and temperature and humidity dependency. Preliminary data indicate that the instrument is quite satisfactory, from both the radiation energy and ruggedness considerations. A procedure has been established whereby other instruments, as they become available, will be given the same tests.

The Steering Committee of the Atomic Energy Commission's Special Tube Development Program met in Princeton, New Jersey, for the purpose of formulating a program of research and development to be conducted at the research laboratories of the Radio Corporation of America under AEC contract. Navy representatives attended the meeting and a program of inter-agency coordination was worked out. RCA was given instructions to proceed with the development of two types of photo-multiplier tubes, both of which will provide research tools for the AEC scientists, facilitating certain physical measurements which have been either very difficult or actually impossible. Preliminary investigations will also be started on a combination electron gun photomultiplier device for use in the analysis of radiation

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RADIATION INSTRUMENTS BRANCH (continued)

spectra.

A series of meetings was held between representatives of the Naval Research Laboratory and Atomic Energy Commission personnel to exchange information on halogen-filled Geiger counters and on techniques for measuring characteristics of scintillators for use in scintillation counters.

A proposal for the Radiation Instruments Branch's participation in Project Greenhouse has been submitted to Los Alamos. The primary object of this participation will be the field evaluation of civilian defense type instruments being developed under AEC sponsorship. A series of spectral dependency measurements have been made in cooperation with the Bureau of Standards to obtain information required for Project Greenhouse.